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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/753,714	01/08/2004	Laurent Alain Fenouil	TS0874 (US)	6299

23632 7590 03/26/2007  
SHELL OIL COMPANY  
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EXAMINER
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WARTALOWICZ, PAUL A

ART UNIT	PAPER NUMBER
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1754

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/26/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/753,714

Applicant(s)

FENOUIL ET AL.

Examiner

Paul A. Wartalowicz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7, 10 and 11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10 and 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

Applicant's arguments with respect to claims 1-7 and 10-11 have been considered but are moot in view of the new ground(s) of rejection.

### ***Inventorship***

In view of the papers filed 1/8/07, the inventorship in this nonprovisional application has been changed by the deletion of Laurent A. Fenouil.

The application will be forwarded to the Office of Initial Patent Examination (OIPE) for issuance of a corrected filing receipt, and correction of Office records to reflect the inventorship as corrected.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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Claims 1-7 and 10-11 are rejected under 35 U.S.C. 103(a) as obvious over Reinalda et al. (U.S. 5217938) in view of Khare et al. (U.S. 5269990) and Wolff-Doring et al. (U.S. 6034029).

Reinalda et al. teach a process for the preparation for a zirconia-based catalyst (col. 1, lines 7-10) as follows: zirconia (inherently teaches zirconia particles, col. 1, lines 60-65) is mixed with a solvent (col. 2, lines 7-12) and with cobalt (col. 2, lines 47-59) preferably using the technique of impregnating the cobalt into the zirconia mixture (col. 4, lines 51-57) such that cobalt can be in form of a nitrate, hydroxide, oxide, or an acetate (col. 2, line 66-col. 3, line 5) and a solvent (col. 2, lines 9-15) and then mulling the mixture (mulling is equivalent to mixing and kneading, col. 4, lines 1-5) which comprises from about 20% to about 60% by weight (col. 1, lines 60-65) and then extruding the resulting mixture (col. 4, lines 12-20) then drying and calcining the extrudate (col. 4, lines 24-33).

If Reinalda et al. does not inherently teach particulate zirconia, Khare et al. teach a process for making shaped zirconia particles (col. 1, lines 28-30) wherein zirconia powder is mixed with an aqueous solution (col. 1, lines 31-35) for the purpose of carrying out a well-known process of shaping zirconia mixtures, then drying and calcining the resulting mixture.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein zirconia powder with an aqueous solution (col. 1, lines 31-35) in Reinalda et al. in order to carry out a well-

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known process of shaping zirconia mixtures, then drying and calcining the resulting mixture as taught by Khare et al.

If the disclosure of Reinalda et al. teaching up to about 60% by solids does meet the limitation of the total solids content of the shapeable dough is in the range of from about 65% to about 75% by weight, it would have been obvious because Reinalda et al. teach that the total solids content of the shapeable dough is in the range of from about 20% to 60% (col. 1, lines 60-61). The prior art range is so close that one skilled in the art would have expected it to have the same properties. *Titanium Metals Corp. v. Banner*, 227 USPQ 773.

Reinalda et al. fail to teach wherein the particulate zirconia comprises no more than about 15% by weight of zirconia which is other than monoclinic zirconia.

Wolff-Doring et al., however, teach that it is known to use monoclinic zirconium dioxide having a large surface area and as large a proportion of monoclinic phase as possible (at least 90% by weight, col. 2) for catalytic applications (col. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide monoclinic zirconium dioxide having a large surface area and as large a proportion of monoclinic phase as possible (col. 1) (at least 90% by weight, col. 2) in Reinalda et al. for catalytic applications (col. 1) as taught by Wolff-Doring et al.

If Reinalda does not teach the limitations of claim 6, Khare et al. teach adjusting the water content of the obtained mixture to about 5-40 weight % water (5-40 weight % translates to 60-95 % solids, col. 1, lines 35-40) for the purpose of carrying out a similar

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well-known process of preparing a zirconia mixture, extruding, drying, and calcining the resulting mixture.

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide the obtained mixture to about 5-40 weight % water (5-40 weight % translates to 60-95 % solids, col. 1, lines 35-40) in Reinalda et al. in order to carry out a similar well-known process of preparing a zirconia mixture, extruding, drying, and calcining the resulting mixture as taught by Khare et al.

Claims 1-7 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Khare et al. (U.S. 5269990) in view of Reinalda et al. (U.S. 5217938).

Khare et al. teach a process for preparing shaped zirconia particles (col. 1, lines 6-9) such that zirconia powder is mixed with an aqueous solution and adjusting the water content of the obtained mixture to a level of about 5 to about 40 weight % water then shaping the mixture and then heating (water is a solvent, shaping mixture meets the limitation of mixing and kneading, heating step meets limitation of drying and heating, 5-40% water meets the limitation of 50-85% solids by weight in the mixture; col. 1, lines 31-41) wherein catalytically active components are generally incorporated into the zirconia support particles by impregnation (col. 1, lines 17-22). Khare et al. fail to teach cobalt in the form of the group consisting of a hydroxide, acetate, nitrate, oxide, and mixtures thereof impregnated into zirconia mixture.

Reinalda et al., however, teach a process for preparation of a zirconia-based catalyst (col. 1, lines 6-11) wherein cobalt in the form of acetate, hydroxide, nitrate, and

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oxide (col. 2, lines 55-60, col. 2, line 67-col. 3, line 5) is impregnated into the extrudate (col. 4, lines 51-60) for the purpose of using a preferred technique for depositing (col. 4, lines 51-52) the catalytically active material of cobalt (col. 2, lines 50-53).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide wherein cobalt in the form of acetate, hydroxide, nitrate, and oxide (col. 2, lines 55-60, col. 2, line 67-col. 3, line 5) is impregnated into the extrudate (col. 4, lines 51-60) in Khare et al. in order to use a preferred technique for depositing (col. 4, lines 51-52) the catalytically active material of cobalt (col. 2, lines 50-53) as taught by Reinalda et al.

As to the limitation of the particulate zirconia comprises no more than about 15% by weight of zirconia that is other than monoclinic zirconia, the combined teachings of Reinalda et al. and Khare et al. teach a substantially similar process as that of the claimed invention such that the properties of the product produced by said process of the combined teachings of the prior art would be substantially similar to that of the claimed invention.

Khare et al. fail to teach wherein the particulate zirconia comprises no more than about 15% by weight of zirconia which is other than monoclinic zirconia.

Wolff-Doring et al., however, teach that it is known to use monoclinic zirconium dioxide having a large surface area and as large a proportion of monoclinic phase as possible (at least 90% by weight, col. 2) for catalytic applications (col. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide monoclinic zirconium dioxide having a

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large surface area and as large a proportion of monoclinic phase as possible (col. 1) (at least 90% by weight, col. 2) in Khare et al. for catalytic applications (col. 1) as taught by Wolff-Doring et al.



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**Conclusion**

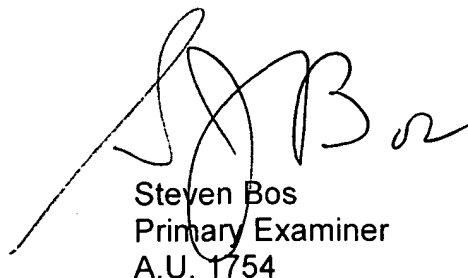
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Wartalowicz whose telephone number is (571) 272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Paul Wartalowicz  
March 22, 2007



Steven Bos  
Primary Examiner  
A.U. 1754